

**ASSIGNMENT**

**Course Title: Apparel Manufacturing III**

**Course Code: TE 417**

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**Topic: Effect of pH in Denim Washing**

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In the beginning I would like to thank Allah for keeping me healthy that’s why I can completed my assignment. I also much obliged to my honorable teacher **Md. Mominur Rahman** for supporting me with his help and guideline to completed my assignment.

**ABSTRACT**

In this assignment, you have the proper knowledge about effect of pH in denim washing. There are many process of denim washing like normal wash, bleach wash, stone wash, acid wash, enzyme wash etc. You can learn the pH effect from these washing process.

**TABLE OF CONTENT**

|  |  |
| --- | --- |
| Sub Topic | Page |
| Introduction | 5 |
| Denim wash | 5 |
| Steps in denim wash process | 6 |
| Effect of pH | 6 |
| pH in denim wash | 7 |
| Determination pH of water | 7 |
| Conclusion | 8-9 |
| Learning | 10 |
| Reference | 10 |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**INTRODUCTION**

Most cleaning chemicals are alkaline (basic) because these are the types of solutions that are good for cleaning dirt stains, greases, oils, and other organics. On the other side of the pH scale, acids are more effective when working on minerals like rust spots and calcium buildup. For using these chemicals pH value is effected. The pH of the dye bath dictates how deep the dye penetrates into the cotton fabric; the higher the pH, the deeper the dye penetrates.

**DENIM WASH**

Washing processes impart the following effects on denim garments:

* Appearance / color change
* Softening
* Dimensional stability
* Different handle

The degree of the above effects depend on processing conditions such as time, temperature, liquor ratio of washing batch and chemicals used.

**STEPS IN DENIM WASH PROCESS**

Denim wash is a sequential process, which consists of many steps. Some of the major steps discussed here are:

1. Pre-treatment

2. Wash

3. Tinting and Dyeing

4. Softening

**EFFECT OF pH in TEXTILE WET PROCESSING**

Textile wet processing is a very complicated process with many different phenomena occurring simultaneously. It covers different areas of science including chemistry, physics, mechanics, physical chemistry, fluid mechanics, thermodynamics and others. Controlling of pH is an important factor in textile wet processing. pH has great significance on every steps of textile wet processing such as pre-treatment, dyeing, printing and finishing. pH control in some textile coloration processes can be crucial, and an unsuitable value may adversely affect the quality of the product or may even result in the destruction of the fabric. pH influences the ‘exhaustion at equilibrium’, and the higher this value, the higher is the rate of dyeing at that moment. The value of the initial exhaustion (strike) in a pH-controlled process must be selected in such a way that the initial unlevelness is no more than can be rapidly corrected by the migration of the dye.

**ENVIRONMENT SIGNIFICANCE OF pH in DENIM WASH**

A controlled value of pH is desired in water supplies, sewage treatment and chemical process plants. In water supply pH is important for coagulation, disinfection, water softening and corrosion control. In biological treatment of waste water, pH is an important parameter, since organisms involved on treatment plants are operative within a certain pH range. According to Bangladesh Environment Conservation Rule (1997). Drinking water standard for pH is 6.5- 8.5

**DETERMINATION OF pH OF WATAR**

A Ph meter is often incorporated in modern dyeing vessels to determine changes in Ph during the dyeing process. Determination of water Ph is described below:

**Reagent:** Standard Ph solution for calibration of Ph Meter

**Procedure:**

1. Perform calibration of the Ph meter using standard Ph solutions. The calibration procedure would depend on the Ph range of interest.
2. Take about 100ml of the sample in a beaker. Make sure not to agitate the sample in order to avoid exchange of gases between sample and atmosphere.
3. Insert Ph meter in the sample. Allow sometime for attainment of equilibrium. Turn on the Ph meter and take reading.

**CONCLUSION**

The study under discussion was conducted to systematically

examine the influence of water pH, together with the other

washing parameters, on delicate textile’s wear such as the

ones from silk and wool. The most important results of the work

can be given as follows:

1. Irrespective of the sample type, the number of washing cycle

is the main effective parameter for dimensional change and

bursting strength performance of delicate textiles.

2. In the case of dimensional stability performance of the

samples, it is observed that the effect of pH value becomes

more significant as the number of washing cycles is

increased.

3. So far, as the knitted fabric samples are concerned, the

water pH value is one of the most important parameters

on bursting strength performance such that the lower

the water pH value, the lower is the performance loss is

observed. Moreover, its effect becomes more prominent as

the number of washing cycles as well as water temperature

are increased.

4. When it comes to washing performance, the protein-based

stains such as blood and chocolate milk perform worse at

a water pH value of 6, in comparison to their performance

at a water pH value of 7.5. The non-protein-based stains,

however, are not influenced by the change of the water pH

value.

5. Water pH value affects color change, though further work is

needed to analyze the interaction mechanism.

6. Tergotometer and domestic washing machine test results

suggest a strong and positive correlation in terms of the

dimensional change, tear strength, and bursting strength

measurements.

**LEARNING**

From this assignment , we can learn the using chemicals for denim wash. In washing different types of chemicals are used so that the pH value of the fabric in maintained must. We have to be very careful about the effect of pH in denim wash/garments wash.

**REFERENCE**

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